

REMARKS

The application is believed to be in condition for allowance.

There are no outstanding formal matters.

Claims 1-2 were rejected as anticipated by REINHART 4,858,264.

Claim 1 was rejected as obvious over TOPIARZ DE 19949071 in view of LANE 5,924,204.

Claims 1, 6-8, and 11-19 were rejected as obvious over PIERCE 5,353,465 in view of JP 05-321189.

Claim 3 was also rejected as obvious over PIERCE 5,353,465 in view of JP 05-321189.

Claims 9 was rejected as obvious over PIERCE in view of JP 05-321189 and SANDT 4,137,588.

Claim 10 was rejected as obvious over PIERCE in view of JP 05-321189, SANDT, and TOPIARZ.

Applicants appreciate the Response to Arguments section found on page 7 of the Official Action. There it is stated that LANE shows a head being made of epoxy resin **capable** of having a hardness sufficient to cut off chips of mastic and resist wear, but not too hard so as to give rise to scratches under the effect of vibratory alternating movement or JP 05-321189 is made of polyetheretherketone (PEEK) loaded with glass or carbon fibers so that it has resistance to wear and does not harm the roll surface that it is scraping. The Official Action therefore concludes

that the claims do not **structurally** recite a patentable invention.

Applicants respectfully disagree.

Even if the references were combined as suggested in the Official Action, the recited head hardness does not result. However, the combinations are improper, which will be discussed first.

The present rejections arise from improper application of hindsight. The analysis is not whether the prior art had the technology to achieve the invention, but rather the invention is taught or suggested by the relevant prior art.

Numerous Federal Circuit decisions emphasize that obviousness rejections over a combination of elements found in two or more prior art references are improper unless the prior art suggests their a combination. *E.g. McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351-52, 60 USPQ2d 1001, 1008 (Fed. Cir. 2001) (" 'the central question is whether there is reason to combine [the] references,' a question of fact drawing on the *Graham* factors"); *In re Kotzab*, 208 F.3d 1365, 1370, 54 USPQ2d 1308, 1316 (Fed. Cir. 2000) ("to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant.").

In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is a rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.") ("The range of sources available [to show a suggestion, teaching, or motivation to combine], however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular."

"When the incentive to combine the teachings of the references is not readily apparent, it is the duty of the examiner to explain why of the reference teachings are proper." *Ex parte Skinner*, 2 USPQ2d 1788, 1790 (Bd. App. & Int'f 1986), see also *Ex parte Clapp*, 277 USPQ 972, 973 (Bd. App. & Int'f 1985) (noting that, to support obviousness, "either the references must expressly or impliedly suggest the claimed combination or the examiner must present a convincing line or reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. . . . [S]implicity and hindsight are not proper criteria for resolving the issue of obviousness.")

These requirements have not been satisfied.

As discussed above, the question of obviousness needs to be considered in the context of the invention and the fair related art. One should consider the invention in the context

recited, i.e., in claim 1, removing mastic, particularly for the repair of joints in the structures of aircraft tanks, the head is made of a non-abrasive material with a hardness sufficient to cut off chips of the mastic and resist wear, but not too hard so as to give rise to scratches under the effect of vibratory alternating movement.

The rejections rely on combining non-analogous references which have been sought out and used with hindsight to argue that the invention is obvious.

To judge obviousness, one must consider the invention as recited, considering what one of skill would have reasonably been motivated to investigate. As to both TOPIARZ and PIERCE, one of skill would have had not motivation to seek the recited head materials, i.e., a non-abrasive material with a hardness sufficient to cut off chips of the mastic and resist wear, but not too hard so as to give rise to scratches under the effect of vibratory alternating movement.

Turning to the recited invention, in claim 1, the recitation is that "the head is made of a non-abrasive material selected from polyetheretherketones, polyoxymethylenes, polyetherimides or epoxy resins with a hardness sufficient to cut off chips of the mastic and resist wear, but not too hard so as to give rise to scratches under the effect of vibratory alternating movement". Thus, this is a clear structural recitation of required properties. Claims 13-14 are similar. To

render these claims obvious, the prior art must fairly teach this recited structural arrangement.

Consider the first rejection, Claim 1 as obvious over TOPIARZ in view of LANE. TOPIARZ is acknowledged not to teach the recited non-abrasive head and LANE is relied upon for the feature. See LANE Figures 3 and 3A, reproduced below.

At column 4, beginning at line 39, it is disclosed that "Several embodiments of the scraper blade of the present invention are shown in FIGS. 3, 3A, 4 and 5. The scraper blade 18 shown in FIG. 3 and in the alternative embodiment in FIG. 3A consists of a metal blade 30 on which is carried a non-metallic hard material 32 that forms the arrowhead shape in the arrowhead-shaped cross-section of the blade 18."

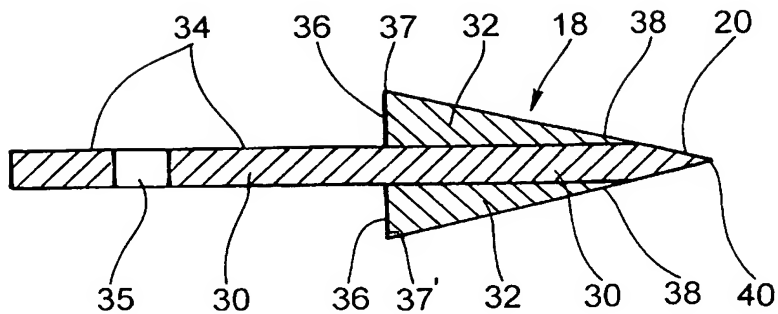


Fig. 3

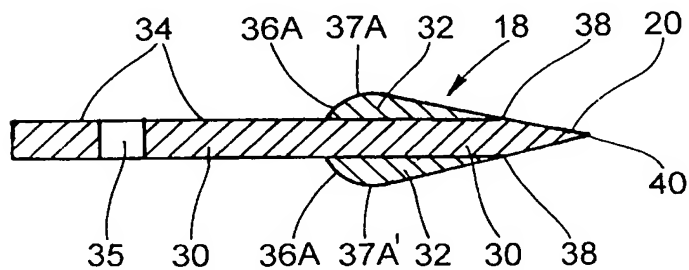


Fig. 3A

At column 4, lines 61-64 (offered by the Official Action), it is further disclosed that "The non-metallic material 32 that forms the arrowhead shape of the scraper blade 18 is a hard and durable material that may be a ceramic material or a synthetic resin such as an epoxy resin. Such materials may be applied to the metal blade 30 to form the arrowhead-shaped cross-section by conventional methods such as extrusion or the like."

Thus, although epoxy resin is disclosed, there is no disclosure that the epoxy resin has the recited features, i.e., so that "the head is made ... with a hardness sufficient to cut off chips of the mastic and resist wear, but not too hard so as to

give rise to scratches under the effect of vibratory alternating movement." Nor is there any reason that the epoxy resin of LANE would need to be "with a hardness sufficient to cut off chips of the mastic and resist wear" or "not too hard so as to give rise to scratches under the effect of vibratory alternating movement". Indeed, as the LANE blade 30 is made of steel, LANE makes no teaching as to a material appropriate to avoid giving rise to scratches.

As the recitation is narrower than "any epoxy", there is no teaching in LANE of the recited material, i.e., an epoxy having the specific recited hardness.

Thus, even if combined, the recitation is not satisfied.

Further, the combination is not viable.

TOPIARZ fairly discloses a process for removing joint compound from joints, particularly used to seal concrete joints, tile joints, and joints between building walls. The TOPIARZ device includes means for causing vibratory alternating movement and a tool with a head in contact with the surface to be cleaned. But, the head of the tool is not specified to be made of a non-abrasive material.

Further, TOPIARZ fails to point out a process comprising a combination of an oscillating motion with a non-abrasive tool.

Rather, the aim of the TOPIARZ invention is only to replace a sanding process, i.e., an abrasive process, by a chipping off process. This chipping off process is achieved by a tool moving forward and backward with a short-stroke oscillating motion, preferably within the ultrasound range of more than 15 kHz.

It would not have been obvious for one of ordinary skill in the art to improve the TOPIARZ device with a non-abrasive tool because this device has been developed to replace prior abrasive processes.

LANE relates to a scraper tool adapted for scraping a layer of material such as layered paint, wallpaper, plaster, sheet flooring, floor tile, etc., and teaches the use of an epoxy resin, eventually hardened. In the preferred embodiment of the scraper blade, the blade is metallic and the epoxy resin is only cited (column 4, line 55, to column 5, line 8) as a non-metallic material applied to the scraper metal blade to form the arrowhead shape of said scraper blade, this arrowhead being sufficiently thick to deflect scraped material away. In another embodiment (column 5, line 66, to column 6, line 22), the scraper blade is fully metallic or could be made from a suitable non-metallic material, e.g., a ceramic material, a synthetic resin, a composite material or the like.

Indeed, in LANE, a tool, or a tool portion in contact with the surface to be cleaned, made of a non-abrasive material is not disclosed because the problem is not to have a material

having a hardness able to cut off chips but not too hard so as to give rise to scratches. The non-abrasivity of a tool or a process is not the purpose of the LANE invention and could not be suggested by this document to one of ordinary skill in the art.

Reconsideration and withdrawal of the rejection are respectfully requested.

Next consider the rejection of claims 1, 6-8, and 11-19 as obvious over PIERCE in view of JP 05-321189.

The Official Action acknowledges that PIERCE too does not disclose the recitation is that "the head is made of a non-abrasive material selected from polyetheretherketones, polyoxymethylenes, polyetherimides or epoxy resins with a hardness sufficient to cut off chips of the mastic and resist wear, but not too hard so as to give rise to scratches under the effect of vibratory alternating movement". JP 05-321189 is offered as teaching a doctor blade made of PEEK loaded with 30% glass fibers or carbon (graphite) fibers so that the material can be used for scraping a surface without damaging the surface.

PIERCE relates to the maritime industry and JP 05 321189 relates, to a paper machine roll. These documents have been extracted from two really different fields, are non-analogous to each other such that one of ordinary skill in the art would not combine these references.

PIERCE deals with a scraper apparatus having a blade and means to impart a reciprocating movement of the scraping

blade. PIERCE provides a scraper apparatus which is adapted to scraping plane and large metal surfaces, particularly for scraping barnacles off of the hull of a sea vessel when it is placed in dry dock. An object of the PIERCE invention is to reduce the manual work of the scraping task, this task being very time-consuming and difficult.

To solve the problem of the prior art, the PIERCE apparatus comprises an elongated body to scrape the maximum surface from the same position and has a certain strength to resist to the scraping of barnacles and avoid mechanical drawbacks. The PIERCE apparatus provides two handle members to operate the scraping blade, and a shoulder strap is secured to the apparatus for helping the operator to support said apparatus during the operation. A magnetically secured support member may be included to the apparatus when used on a metal surface. With such a number of supports and handles, the PIERCE device could not be considered as portable and handy as the present invention. Further there is no teaching that the PIERCE device would find application in removing materials, e.g., mastic, such that the claimed hardness would be advantageous.

The PIERCE device could not be adaptable to the recited inventive application in the aeronautic field. It is difficult to imagine an operator who achieves the mastic removing operations, in regions of aircraft reservoirs where conditions of access are

difficult, with a scraper apparatus, heavy and bulky, as described in PIERCE.

JP 05 321189 relates to a doctor blade used in order to scrape paper adhering to the roll surface of a paper machine roll. The doctor blade disclosed in JP 05 321189 has been developed to replace doctor blades from the prior art, metallic or made of resin, which lead to damage the roll surface or have a short service life.

This doctor blade could be made of a composite material which contains thermoplastic resins including PEEK, PES, PPS, PBT, nylon, polycarbonate, but preferably polyphenylene sulphide resin and fibers selected from glass fibers, aramid fibers and graphite fibers. But, such doctor blade is a static device. For removing the paper bounded to the roll surface, the cutting edge of the doctor blade is disposed close to the roll surface, eventually with a contact pressure, and said roll surface is rotated. The paper bounded to the roll surface is not similar to a joint made of mastic, paper and mastic have different mechanical properties which induce different processes of scraping, thus requiring a different hardness than that recited,

The cohesion of a mastic joint is more important and its hardness increases with age. So, the removal of a mastic joint needs a vibratory alternating movement to ensure the dislodging of the mastic or the formation of chips. The doctor blade disclosed in this Japanese document is not adapted to cut

off chips of mastic by the action of a vibratory alternating movement. Even if the doctor blade of this Japanese document is made of a material comprising resins and fibers, the application and the process of scraping are different and would require a different hardness.

JP 05 321189 does not teach to one of ordinary skill in the art how to realize a tool with a sufficient hardness to ensure the formation of chips but not too hard so as to give rise to scratches.

Reconsideration and allowance of all the claims are respectfully requested.

Should there be any matters that need to be resolved in the present application; the Examiner is respectfully requested to contact the undersigned at the telephone number listed below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Roland E. Long, Jr., Reg. No. 41 949
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

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